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WAR DEPARTMENT

TECHNICAL MANUAL

DISPOSAL METHODS FOR ENEMY BOMBS AND FUSES

November 12, 1942

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O-1552658

ARMY

NAVY

BOMB DISPOSAL MANUAL

THIS MANUAL ON ALLIED AND ENEMY EXPLOSIVE MATERIEL HAS BEEN COMPILED THROUGH THE JOINT EFFORTS OF THE UNITED STATES ARMY ORDNANCE BOMB DISPOSAL SCHOOL, ABERDEEN PROVING GROUND, MARYLAND, AND THE UNITED STATES NAVY BOMB DISPOSAL SCHOOL, POTOMAC RIVER NAVAL COMMAND, WASHINGTON, D.C. INQUIRIES AND INTELLIGENCE INFORMATION ON BOMB DISPOSAL SHOULD BE SENT DIRECTLY TO THE COMMANDANT OF THE ARMY SCHOOL, OR TO THE OFFICER-IN-CHARGE OF THE NAVY SCHOOL.

THE BOMB DISPOSAL MANUAL IS COMPRISED OF THE FOLLOWING INFORMATION ON EXPLOSIVE MATERIEL.

GERMAN BOMBS AND FUZES.
JAPANESE BOMBS AND FUZES.
ITALIAN BOMBS AND FUZES.
FRENCH BOMBS AND FUZES.
BRITISH BOMBS AND FUZES.
AMERICAN BOMBS AND FUZES.
AMERICAN ARMY PROJECTILES AND PROJECTILE FUZES.
AMERICAN NAVY PROJECTILES AND PROJECTILE FUZES.

THIS INFORMATION IS CONTAINED IN SEVERAL VOLUMES

SECRET

TM E9-1984

TECHNICAL MANUAL

ENEMY
BOMBS AND FUZES

Prepared under direction of the
Chief of Ordnance

WAR DEPARTMENT
OCTOBER 1, 1944

WAR DEPARTMENT,
Washington, November 12, 1942.

TM E9-1984. The purpose of this Manual is to provide in convenient form a text on disposal methods for Enemy Bombs and Fuzes. The information contained herein consists of disposal methods of all known Enemy Bombs and Fuzes. From time to time addenda will be published for inclusion in this Manual.

(A.G. 062.11 (11-10-42).)

By ORDER OF THE SECRETARY OF WAR:

G.C. MARSHALL,
Chief of Staff.

OFFICIAL:

J.A. ULIO
Major General,
The Adjutant General.

CONFIDENTIAL

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INSTRUCTIONS

FOR THE

USE AND MAINTENANCE

OF

BOMB DISPOSAL EQUIPMENT

CONFIDENTIAL

DISPOSAL INSTRUCTIONS

USE OF EQUIPMENT

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DISPOSAL INSTRUCTIONS	FILE NO.: 100.00
USE OF EQUIPMENT	

GENERAL

I. THE EQUIPMENT:

The Equipment described herein is designed and developed, to a large degree, by the Experimental Section of the Ordnance Bomb Disposal School, Aberdeen Proving Ground, Maryland, U.S.A. An attempt has been made in this, the first revision, to use pictures as well as words, in order to make clear the use and maintenance of this equipment.

The Ordnance Bomb Disposal School is highly desirous of receiving reports and pictures, from Bomb Disposal Officers in the field, concerning the use and recommendations for improvement of all equipment. Send all reports to the COMMANDANT of the school.

II. SUBSTITUTE STANDARDS:

The Impact Wrench, T-1/M-3, is now listed as substitute standard. The new Impact Wrench, T-10/M-2, is standard equipment.

The Liquid Fuze Discharger is now listed a substitute standard. The Thermal Fuze Discharger, T-11/M-1, is standard equipment.

Spanner Wrenches, T-6/M-1 and T-7/M-1, are substitute standard. The set of four Spanner Wrenches (no designation) are standard equipment.

III. DESTRUCTION OF EQUIPMENT:

In the event of probable capture by the enemy, the equipment should be destroyed by demolition. If time does not allow demolition, the equipment should be thrown into deep water, smashed to pieces, or scattered piece by piece along the road as an escape is made.

DISPOSAL INSTRUCTIONS	FILE NO.: 101.30
USE OF EQUIPMENT	

OLD IMPACT WRENCH T-1/M-3

THEORY:

A vise is attached to the fuze and a reel wound with rope is fastened to the vise. As the reel is turned by pulling the cord, it gains momentum until stopped by a lug on the vise. The impact exerts a torque on the fuze and bomb. Since the inertia of the fuze is less than that of the bomb, the fuze tends to turn. A spring retracts the reel and the action is repeated until the fuze is loosened.

DESCRIPTION:

The old impact set consists of the following parts and attachments:

1. Impact reel
2. Attachment (For Japanese B-2(a) Fuze) A-1/M-3
3. Vise and Roller Jaw A-3/M-4
4. Attachment (Spacer) A-4/M-1
5. Attachment (For Japanese B-2(b) Fuze) A-6/M-1

A coil of rope is wound on a reel which will turn until a stop makes contact with a lug on a welded plate (to which the reel is attached). Various sizes of attachments are fitted to the plate, depending on the typed fuze. An internal spring retracts the reel and cord.

Attachments A-1/M-3 and A-6/M-1 are designed to fit the Japanese fuzes B-2(a) and B-2(b), respectively. Three bayonet lugs enable these adaptors to be fitted to the wrench. The attachments have three threaded pins which fit into the spanner holes of the Japanese fuzes.

The vise A-3/M-4 consists of two movable jaws which will grip most fuzes that will be encountered. A self-tightening roller jaw is also included to be used when the teeth slip. The eccentrics, if properly placed, will tighten the grip on the fuze as each impact occurs.

A spacer attachment A-4/M-1 is used if the fuze body is exceptionally long. This enables the vise to be fitted on the fuze close to the nose of the bomb. (The new impact wrench T-10/M-2 has a sufficiently wide opening to allow the vise and jaw to slip up to the nose of the bomb without the use of a special spacer attachment.

OPERATION:

1. Select the proper attachment and tighten it securely to the fuze. The vise, when used, should be placed as near to the nose of the bomb as possible. Tighten the jaws symmetrically on the fuze body, engaging as many teeth as possible. A short length of pipe may be used on the handles of the vise to give a tight grip. The final position of the handles should be as nearly parallel to the plane of the vise jaws as possible.

2. Attach the spacer if necessary, tightening securely.

3. Attach the reel, and tighten securely.

4. Unwind sufficient rope to pass through all pulleys and to clear the shaft. About 20 turns will remain on the reel.

5. Attach an additional length of rope to the end of the first. Lead it back to the safety position of operation, carrying the rope over logs or over smooth surfaces. Wherever possible, keep the rope clear of underbrush. (Continued on following page.)

OLD IMPACT WRENCH T-1/M-3 (Continued)

OPERATION:

6. From the safety position, pull the rope taut and first attempt to loosen the fuze by a straight pull. If the fuze does not come loose, allow the reel to retract, after taking note of the position of the hands in relation to the ground.

7. Pull quickly to secure a slight impact. Any loosening of the fuze will be noted by the position of the hands in relation to the previously noted position. Continue the impacts, using light blows at first. If the fuze resists, increase the impacts to medium and finally heavy blows. DO NOT HURRY! When the fuze is loosened, use a slow steady pull to unscrew the fuze.

NOTE:- A smoothly working pulley system will make the job easier. If a pile of dirt is packed near and under the impact wrench after it is fastened to the fuze, the jar will be lessoned when the fuze is finally unscrewed and falls away.

CARE AND MAINTENANCE:

1. Keep the reel thread and all parts well oiled.

2. The collar on the reel is used to adjust spring tension. A 10 to 12 pound pull should be the standard adjustment. The reel must be able to retract, pulling 250 feet of cord.

3. Keep a sharp lookout for binding or cracking the knurled screws or bayonet locking lugs. Also inspect the welded impact lugs occasionally for cracks.

DISPOSAL INSTRUCTIONS	FILE NO.: 103.10
USE OF EQUIPMENT	

HYDRAULIC CLOCKSTOPPER T-3/M-1

THEORY:

The Hydraulic Clockstopper was developed originally to stop the German 17 clockwork. Numerous other uses are now made of this apparatus. High pressure oil is forced into the fuze, or in the case of the C-1(a) de-armer, the oil is pumped into a cylinder and pushes against a tight fitting piston. Oil pumped into a fuze will pass down the fuze pocket, and up through the threads of the gaine. When the cap or detonator in the fuze is fired, the explosive in the gaine is oil-soaked, and does not detonate. When the oil gets into the clock mechanism, the viscosity of even a light oil (S.A.E. 10) will stop the delicate balance wheel. In mechanical fuzes, where the striker may be spring-loaded, oil forced into the fuze is sometimes found to have a cushion effect when the striker is pushed forward by spring action.

DESCRIPTION:

The Hydraulic Clockstopper Set consists of the following parts and attachments:-

1. Pump - of the boiler-test type, with a 0-3000 lb./sq. inch gauge.

2. A reel containing 150 feet of 3/16 inch "Tite Flex" hose in 10 sections.

3. A head which is screwed into the thread occupied by the locking ring. The head has a detachable spring which guards against spring-loaded fuzes.

4. Miscellaneous items. (Extra gaskets, springs, and a gasket "defeater" - a device for breaking the seal of the gasket under the fuze head, thus permitting the oil to enter.)

OPERATION:

In the case of a 17 series fuze, with clock:-

1. Use the stethescope to determine whether the clockwork is running. If not, take care so as not to jar the bomb and set the clock to running again. If an anti-disturbance fuze is also present and the clock is ticking, the clockstopper can be applied without disturbing the sensitive anti-handling fuze, provided reasonable care is taken.

2. While maintaining pressure on the fuze with the fingers of one hand, remove the locking ring. This presents a spring-loaded device from pushing the fuze out.

3. Next remove the locating ring, putting a fiber gasket in its place. Insert a gasket defeater under the fuze head.

4. Screw on the spring-loaded head, making certain that the fiber gasket is correctly seated.

THE SPRING SHOULD NOT BIND ON THE FUZE BOSS. DO NOT ROTATE THE FUZE IF THE CLOCK IS NOT RUNNING. IF THE SPRING BINDS, OPEN THE BOTTOM OF THE SPRING.

5. Attach the hose to the head and to the pump.

6. Pump oil (S.A.E. 10 or its equivalent) into the fuze maintaining 1000 pounds pressure for five minutes.

7. With the stethescope still attached, listen to determine whether the clock is running. If it is still ticking, raise the pressure until it stops and hold it there for five minutes. (Continued on the following page.)

DISPOSAL INSTRUCTIONS	FILE NO.: 103.10
USE OF EQUIPMENT	

HYDRAULIC CLOCKSTOPPER T-3/M-1 (Continued)

OPERATION:

8. Never attempt to withdraw a type 7 fuze. The bomb can be moved safely after the fuze has been made safe.

CARE AND MAINTENANCE:

1. The "Tite Flex" hose should be kept filled with S.A.E. 10 oil, or its equivalent, by means of plugs in both ends.

2. Never bend the hose or coil it on a smaller diameter than that of the reel.

3. Leaks may be repaired by running acid flux solder onto the wire sheath of the hose.

4. The large thread on the high pressure head which fits over the fuze should always be protected by the bronze cap when not in use.

5. Always use clean oil.

6. Clean the check valve under the gauge when necessary.

7. Gaskets can be made of a similar 1/16 inch material.

8. All equipment is tested at the Bomb Disposal School up to a pressure of 2200 lbs./sq. inch.

9. The end of the spring in the head which seats on the fuze should be expanded to a 1-5/16 inch inside diameter to prevent binding on the fuze boss.

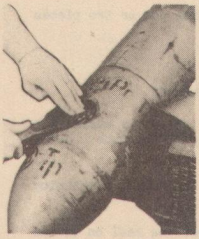


FIG. 1
Removing the locking ring.

FIG. 2
Applying the spring-loaded head after inserting fiber gasket and gasket defeater.

FIG. 3
The head in place with hose attached.

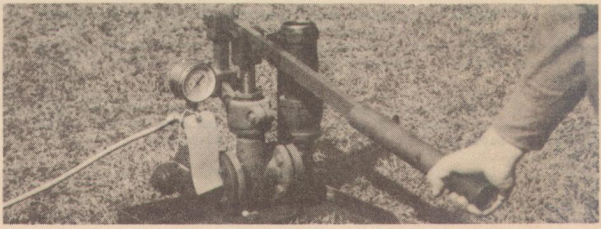


FIG. 4
Pumping the oil into the fuze.

DISPOSAL INSTRUCTIONS	FILE NO.: 104.20
USE OF EQUIPMENT	

MERRILEES EXTRACTOR FOR ELECTRIC FUZES T-4/M-2

THEORY:

This equipment makes possible the extraction of German Electric Rheinmetall fuzes by remote control and a mimimum of vibration. A reel is fastened to the fuze and is unwound by pulling on a rope from a position of safety. An additional device enables the "Y" fuze to be withdrawn by means of a rotary motion imparted to the fuze; this defeats the anti-withdrawal device.

DESCRIPTION:

The Merrilees Extractor Set consists of the following:-

1. A collet for gripping the fuze boss.

2. A threaded spindle for attaching the reel to the collet.

3. A tube for supporting the reel and guiding the fuze as it is withdrawn.

4. A reel containing 250 feet of cord for operation by remote control.

5. A bolt for securing the threaded spindle in the tube.

6. A plate and spring attachment which is used to impart to the fuze, a rotary motion as it is withdrawn.

7. A short bolt.

OPERATION: (After the fuze has been made safe.)

1. Attach the collet to the fuze boss, using one or two pieces of paper if the collet tends to slip on the boss.

2. Remove the locking and locating rings.

3. Screw the tube into the locking ring thread.

4. Attach the threaded spindle to the collet by means of a bolt which is passed through the slots in the side of the tube. Screw the nut on the bolt but do not tighten.

5. Screw the guide cap on to the top of the tube, tightening it to the tube by means of the wing bolt.

6. For all fuzes except the "Y" fuze, screw the reel on to the threaded spindle. For the "Y" fuze, first attach the plate spring assembly with the plate resting against the spring. Then apply the reel with the cord wound to rotate the reel in a clockwise direction.

7. Unwind sufficient cord from the reel to pass through all pulleys in the hole. Tie a second length of cord to the first. Lead it back to the safety position of operation, carrying the rope over logs or over smooth surfaces. Wherever possible, keep the rope free of underbrush.

8. From the safety position, pull the rope taut and then continue to pull slowly. Finally pull hard and seat the reel firmly against the guide cap when the fuze is entirely withdrawn.

9. Loosen the wing bolt in the guide cap.

(Continued on the following page.)

DISPOSAL INSTRUCTIONS	FILE NO.: 104.20
USE OF EQUIPMENT	

MERRILEES EXTRACTOR FOR ELECTRIC FUZES T-4/M-2 (Continued)

OPERATION:

10. Grasp the protruding threaded spindle, unscrew the guide cap, and remove the reel, threaded spindle, guide cap, collet, and fuze, guiding the fuze with the other hand so as not to strike the side of the tube which is removed only after the fuze is withdrawn.

11. Remove the gaine from the fuze.

CARE AND MAINTENANCE:

1. Keep all parts well oiled.

2. The large threads on the ends of the tube should be protected at all times by the bronze caps when not in use.

MERRILEES EXTRACTOR FOR ELECTRIC FUZES T-4/M-2 (Modification)

THEORY:

The present extractor allows only a straight pull which will not remove the German electric fuze designated as the 50 B. or "Y" fuze. This fuze has a spring which allows the fuze to be removed only by clockwise rotation. The attachment consists of a plate and spring which slide down over the spindle. A stop is fixed to the reel.

ALTERATION OF THE PRESENT EQUIPMENT:

1. Mill a 5/32 inch slot (A) 1/8 inch deep and 7-1/4 inches long from the top of the threaded spindle. The sharp edges left on the thread should be removed by slight 45 degree mill cuts or with a file.
2. Mount a stop (B) 1-3/4 inches from the center of the reel hub as shown.
3. Fabricate a steel plate (C) with a key (D) and protruding stop as shown in the diagram.
4. Wind a spring (E) as shown. The spring should be fastened to the plate.
5. Use a special short collet bolt and nut (F) to allow the collet-spindle assembly to rotate freely within the tube.

OPERATING INSTRUCTIONS:

1. Apply collet to fuze boss.
2. Remove locking and locating rings.
3. Carefully attach threaded spindle to collet with short bolt and nut.
4. Screw tube into locking ring thread, holding spindle to prevent movement.
5. Apply guide cap.
6. Apply plate - spring assembly as shown in diagram.
7. Apply the reel with the stub down and the cord wound to rotate the reel and fuze clockwise.
8. Thread the cord through the necessary pulleys and attach another length of cord to run back to a position of safety. The reel should be nearly full of cord.
9. The spring, plate, and stop system will work on a fuze which requires counter-clockwise turning, provided a left-hand spindle and reel are obtained.

DISPOSAL INSTRUCTIONS	FILE NO.: 104.20
USE OF EQUIPMENT	

MERRILEES EXTRACTOR FOR ELECTRIC FUZES T-4/M-2

FIG. 1

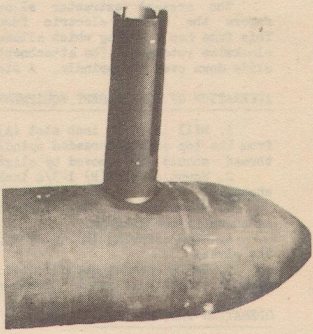
Attaching collet.

FIG. 2

Removing the locking ring.

FIG. 3

The threaded tube in place.



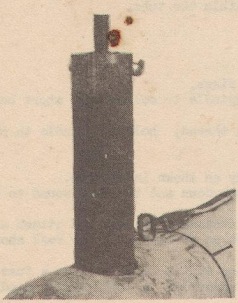


FIG. 4

The threaded spindle attached.

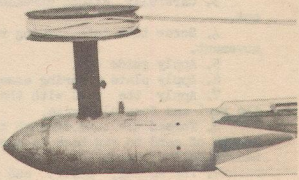


FIG. 5

The reel and tube in place. (Note the long bolt extending through the extractor tube.)

DISPOSAL INSTRUCTIONS FILE NO.: 104.20 281

USE OF EQUIPMENT

MERRILEES EXTRACTOR FOR ELECTRIC FUZES T-4/M-2

FIG. 6

A short bolt is required for the "Y" fuze.

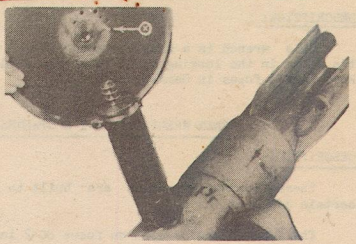
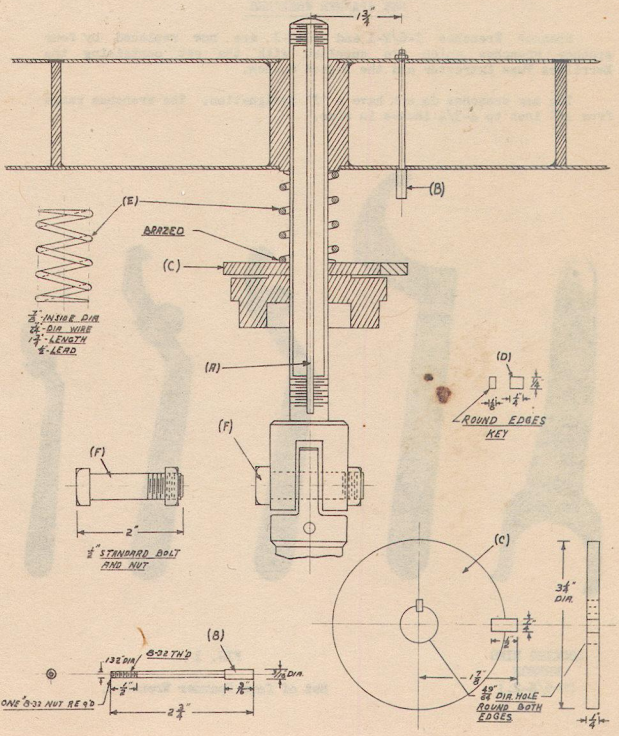


FIG. 7

The "Y" fuze also requires the plate and spring assembly as shown. (Note the lug attached to the reel at "X".)



DISPOSAL INSTRUCTIONS	FILE NO.: 105.20, 106.10, 107.10
USE OF EQUIPMENT	

LOCKING RING WRENCH T-5/M-2

DESCRIPTION:

This wrench is a simple spanner wrench which is designed to engage the slots in the locking rings which are used to secure the Electrical Rheinmetall fuzes in German bombs.

SPANNER WRENCH T-6/M-1 & SPANNER WRENCH T-7/M-1

DESCRIPTION:

These spanner wrenches are built to engage the spanner holes of certain Japanese fuzes.

The T-6/M-1 can be used on fuzes of 2 inches in diameter.

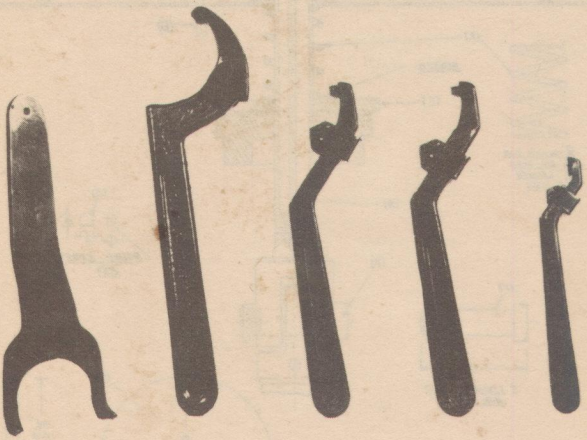
The T-7/M-1 can be used on fuzes of 2-1/8 inches.

These two wrenches are outmoded by four new spanner wrenches.

NEW SPANNER WRENCHES

Spanner Wrenches T-6/M-1 and T-7/M-1 are now replaced by four spanner wrenches which are supplied with the set containing the Merrilees Fuze Extractor and the Impact Wrench.

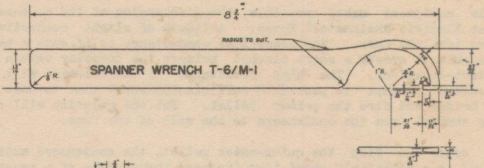
The new wrenches do not have a "T" designation. The wrenches range from 1/2 inch to 4-3/4 inches in size.

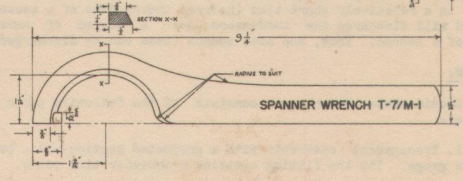


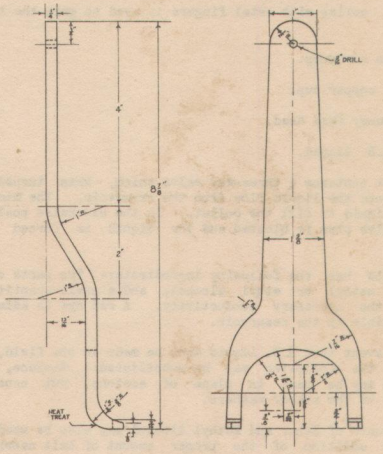
LOCKING RING WRENCH (T-5/M-2.)

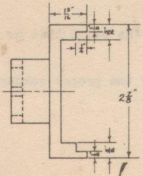
FIG. 1

Set of four Spanner Wrenches.









LOCKING RING WRENCH T-5/M-1

DISPOSAL INSTRUCTIONS	FILE NO.: 109.20
USE OF EQUIPMENT	

THE LIQUID FUZE DISCHARGER T-9/M-2

THEORY:

This equipment makes possible, the discharging of the condensers in German Electric Rheinmetall Fuzes. A liquid of slight conductivity is pumped into the fuze. The electrical conductance is of such a value as to be able to create a short circuit between the trembler switch and its contact-container. The high resistance of the solution will not allow enough current to pass in a sufficiently short time to heat the ignitor bridge and fire the primer pellet. But the solution will conduct the current from the condensers to the wall of the fuze.

In order to fire the quick-match pellet, the condensers must be discharged in a relatively short time (several thousandths of a second). B.D. Liquid will discharge the condensers over a period of several hundreths of a second. Thus, the most common fuzes can be discharged.

DESCRIPTION:

The Liquid Fuze Discharger consists of the following parts and attachments:-

1. Transparent reservoir with a graduated section and a built in pressure gauge. The top fitting contains a Schvader tire valve.

2. A piece of "Tite Flex" hose connects the reservoir to the collet.

3. A collet with metal fingers is used to grip the top of the fuze boss.

4. An air pump.

5. A copper cup.

6. Dummy fuze head.

7. B.D. Liquid.

The collet contains a three-way valve which, when turned counter-clockwise, stops the liquid flow from the reservoir. The mid position allows the liquid to fill the collet. In the clockwise position, the hole in the valve stem is blocked and the liquid is forced into the fuze.

B.D. Liquid has the following ingredients:- Two parts of acetone to one part of methyl or ethyl alcohol, and a small quantity of salt water to give the necessary conductivity. A red dye is added to make the liquid visible in the reservoir.

In the event that B.D. Liquid must be made in the field, in cases of emergency, the following may be substituted:- Benzene, (commonly called Benzol) may be used in place of acetone, but causes rapid disintegration of the rubber washers.

Equal amounts of Ether and Methyl Alcohol may also be used as the liquid, after addition of the proper amount of salt water has been added.

Methyl alcohol may be used alone in the event that no acetone or ether is available.

Finally, water alone may be used, after the proper conductivity has been established.

(Continued on the following page.)

DISPOSAL INSTRUCTIONS	FILE NO.: 109.20
USE OF EQUIPMENT	

THE LIQUID FUZE DISCHARGER T-9/M-2 (Continued)

OPERATION:

1. Connect the reservoir to the collet by means of the "Tite Flex" hose.

2. Turning the valve counter-clockwise, fill the reservoir with B.D. Liquid.

3. Replace the top on the reservoir, attach the air pump, and pump one or two strokes. Then, by turning the valve slightly in a counter-clockwise direction, the air can be bled from the "Tite Flex" hose. Allow the liquid to run out until the liquid level in the reservoir falls nearly to zero on the scale.

4. Pump up to 25 lbs./sq. inch pressure on the scale. Unscrew the collet wing nut. The discharger is ready for use.

5. Clean the head of the fuze and attach the collet, fastening it by means of the wing nut. Hang up the reservoir (with 25 lbs. pressure in it) in a near by, convenient place.

6. Prepare to temporarily leave the area of the UXB. When ready to depart, quickly turn the valve in a clockwise direction and note the reading on the scale after the initial rapid drop (this is caused by the liquid filling the space between the boss and the collet).

7. Check for leaks and withdraw for 25 minutes.

8. Return to the area of the UXB and check the level of the liquid in the reservoir. The following table shows the approximate amount of liquid which should have entered the fuze:-

(15) Fuze	5 c.c.
(35) (38) (50) 50 (55) Fuzes	10 c.c.
(25) (28)	20 c.c.

If the proper amount of liquid has not entered the fuze, pump up the pressure, and repeat. NEVER EXCEED 25 lbs./sq. inch PRESSURE.

CARE AND MAINTENANCE:

1. Drain equipment and pump air through it after each time it has been used.

2. Use alcohol to clean the equipment occasionally.

3. If the valve will not seat itself properly, work it back and forth several times by hand.

4. Avoid exposure of the equipment to salt water.

5. Leaks in the "Tite Flex" hose may be repaired with solder.

6. Always keep the gaskets clean and in their position, ready for use.

7. Test the equipment occasionally by means of the brass dummy fuze head. After applying 25 lbs. pressure to the dummy fuze head, there should be no drop in pressure for at least one hour.

8. Temperature has a marked affect on conductivity. Extreme cold requires that some additional salt solution be added, to increase the conductivity. Hot weather will necessitate a reduction in conductivity by addition of methyl or ethyl alcohol, benzene, or ether.

DISPOSAL INSTRUCTIONS	FILE NO.: 110.20
USE OF EQUIPMENT	

NEW IMPACT WRENCH T-10/M-2

THEORY:

A vise is attached to the fuze and a reel wound with rope is fastened to the vise. As the reel is turned by pulling the cord, it gains momentum until stopped by a lug on the vise. The impact exerts a torque on the fuze and bomb. Since the inertia of the fuze is less than that of the bomb, the fuze tends to turn. A spring retracts the reel and the action is repeated until the fuze is loosened.

DESCRIPTION:

The New Impact Wrench consists of the following parts and attachments:-

1. Impact reel.

2. Detachable vise.

The reel is similar in principal to the old impact reel. The vise jaws are of hardened armor plate and contain two internal spring-loaded pins to engage the spanner holes of certain enemy fuzes. Each of the jaws in the vise can be opened so as to fit over fuzes with 5 inch diameter arming vanes. Each jaw assembly is locked in place by a locking pin which can also be locked in position. There are no other attachments.

OPERATION:

1. Separate the vise from the impact reel.

2. Pull up the locking pins and turn them to the position which will hold them in the retracted position.

3. Attach the vise to the fuze. Center the assembly, bring the vise jaws into place, and release and lock the locking pins.

THE LOCKING PINS MAY JUMP OUT DURING OPERATION UNLESS THEY ARE LOCKED IN PLACE.

4. Tighten the vise, fitting the adaptor pins in any spanner holes which may be present. Take care to see that the vise is centered around the fuze in order that as many teeth as possible may grip the fuze. A short length of pipe can be used for a good tight grip. Leave the tightening screw handles in the plane of the vise jaws so as not to hinder the reel.

5. Now attach the reel, making certain that the impacts will loosen a fuze with a right-hand thread. (The dust cap holes should be on the side away from the bomb. For left-hand fuzes, reverse the impact reel.)

6. Unwind sufficient rope to pass through all pulleys and to clear the shaft. About 20 turns will remain on the reel.

7. Attach an additional length of rope to the end of the first. Lead it back to the safety position of operation, carrying the rope over logs or over smooth surfaces. Wherever possible, keep the rope clear of underbrush.

8. From the safety position, pull the rope taut and first attempt to loosen the fuze by a straight pull. If the fuze does not come loose, allow the reel to retract, after taking note of the position of the hands in relation to the ground.

(Continued on the following page.)

NEW IMPACT WRENCH T-10/M-2 (Continued)

OPERATION:

9. Pull lightly to secure a slight impact. Any loosening of the fuze will be noted by the position of the hands in relation to the previously noted position. Continue the impacts, using light blows at first. If the fuze resists, increase the impacts to medium and finally to heavy blows. DO NOT HURRY! When the fuze is loosened, use a slow steady pull to unscrew the fuze.

NOTE:- A smoothly working pulley system will make the job easier. If a pile of dirt is packed near and under the impact wrench after it is fastened to the fuze, the jar will be lessoned when the fuze is finally unscrewed and falls away.

CARE AND MAINTENANCE:

1. Keep the reel thread and all parts well oiled.

2. A 10 to 12 pound pull should be the standard adjustment. The reel must be able to retract, pulling 250 feet of cord.

3. Maintain a constant check on the jaw teeth. Failure of the teeth to grip the fuze body during operation is usually due to loose attachment. A short length of pipe can be used to tighten the screw handles of the vise.

4. The cable inside the reel will with stand 3500 to 5000 impacts. When the usefulness of the spring is ended, or when the cable breaks, each must be replaced. The following instructions will aid in replacing the spring and cable assemblies.

a. Remove the dust caps which cover the inspection holes on the side of the reel. (Five holes in all.)

b. Remove the small plate on the side of the intermediate hub.

c. Remove the four guide screws and lock washers.

d. Draw up the intermediate hub and remove the reel guides.

e. Turn the assembly over and draw up the intermediate hub again. Attach a piece of wire or cord to the exposed cable near the cable anchor. This will prevent the cable from snapping. Now remove the cable anchor screw and release the tension on the cable.

f. Remove the spring from the spring hook and pull the spring cable assembly out through an inspection hole - spring end first.

g. To insert the new spring cable assembly, thread the cable through the inspection hole above the spring hook, starting clockwise - with the cable end. Keep the assembly above the rollers.

h. After two revolutions of the cable anchor, attach the spring to the spring hook.

i. Fasten a wire to the tapped hole in the cable anchor and thread it down behind the spring and through the reel slot.

j. Turn the reel over and rotate the intermediate hub clockwise until the impact lugs hit and then lift the hub as far as possible.

(Continued on the following page.)

DISPOSAL INSTRUCTIONS	FILE NO.: 110.20
USE OF EQUIPMENT	

NEW IMPACT WRENCH T-10/M-2 (Continued)

CARE AND MAINTENANCE:

k. Pull the wire and cable anchor up between the reel and the intermediate hub far enough to allow cable anchor to be attached by its screw.

l. The cable anchor is attached in such a manner that the cable lies against the flange on the hub through which the cable anchor screw passes. Release the cable and allow it to assume its normal position before tightening the cable anchor screw.

m. Turn the assembly over and place the cable on the bottom brass rollers and the spring on the upper rollers. Make certain that the spring and cable are riding smoothly over all brass rollers.

n. Oil all sliding surfaces.

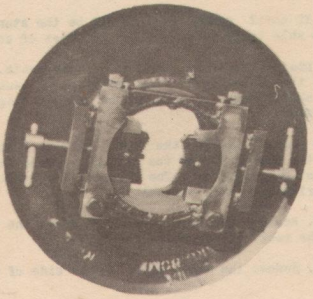


FIG. 1
The impact wrench and vise assembled.

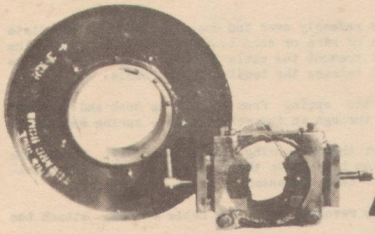


FIG. 2
The Vise separated from the reel.

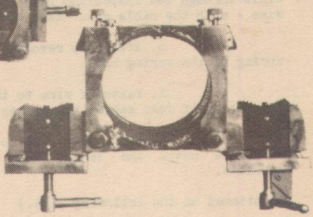


FIG. 3
The Vise jaws opened. (Note the locking pins in the retracted position.

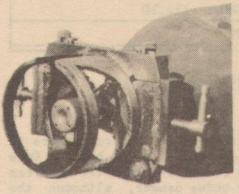


FIG. 4

The Vise tightened on the fuse body. (Note the tightened screw handles are in a vertical position.

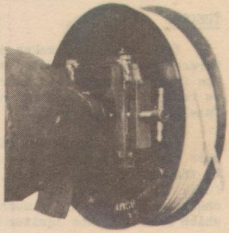


FIG. 5

The Reel attached.

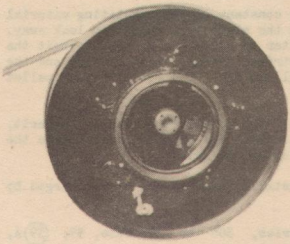


FIG. 6

Looking towards the bomb. (Note that the dust cap holes are on the side away from the bomb for right-hand threaded fuse.

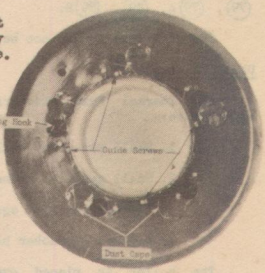


Fig. 7.

The Wrench with the Dust Caps opened.

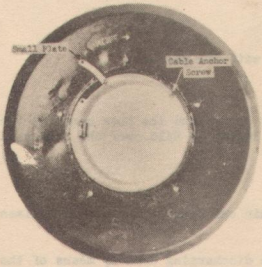


Fig. 8.

Removal of the Small Plate.

Fig. 9.

Disassembly, showing Reel Guides, Spring and Cable, and Intermediate Hub.

DISPOSAL INSTRUCTIONS	FILE NO.: 111.10
USE OF EQUIPMENT	

THE THERMAL FUZE DISCHARGER T-11/M-1

THEORY:

This equipment makes possible the discharging of the condensers in German Rheinmetall Fuzes while the fuzes are still in the bomb. Once the fuze is made safe, there is no need to remove it, and the bomb can be removed to the disposal area without any undue danger, although the fuze still remains in it.

Heat will change the dielectric constant of the insulating material used in condensers, thus enabling the electrical charge to leak away. In the case of German Fuzes, hot water or steam can be used to heat the fuze; in this way, most of the electrical charge is dissipated, and the charge which remains is much too small to fire the quick-match pellet which surrounds the ignitor bridge.

If high pressure steam is used, the polystyrene molding may melt, thereby allowing the tremblers to contact the trumbler cups before the condensers are discharged, thereby firing the fuze.

The following Electric Rheinmetall Fuzes cannot be discharged by this method:-

(17), (17)A, (17)B, (49) series, 50b or "Y" fuze, 59, (59)A, (79), (79)A, (89), (89)B.

The apparatus should not be used near a "George" Mine.

DESCRIPTION:

The Thermal Fuze Discharger consists of the following parts and attachments:-

1. Small fire-tube boiler.

2. Small gasoline burner.

3. Discharging head equipped with two magnets.

4. A piece of rubber hose.

The boiler is placed over the burner and the hose connects the boiler to the discharging head. The latter is held over the fuze head by two magnets.

OPERATION:

1. Fill the boiler to within one inch of the top with clean water.

2. Connect the boiler and the discharging head by means of the hose.

3. Fill the stove with white (non-leaded) gasoline if available. (The use of leaded gasoline requires adequate ventilation and frequent cleaning of the stove.) Replace and tighten the filling cap.

4. Pull out the folding feet from the base of the stove.

5. To light the burner, turn the pump handle two turns in a counter-clockwise direction. Holding the thumb over the vent hole, pump 25 to 30 strokes. Turn the pump handle clockwise to tighten the valve. Rotate the tip-cleaning lever several times and leave in the down position. To light the burner, turn the main gasoline valve 1/4 turn in

(Continued on the following page.)

THE THERMAL FUZE DISCHARGER T-11/M-1 (Continued)

OPERATION:

a counter-clockwise direction. Light the burner. After the burning flame becomes blue, (3 to 5 minutes), open the gasoline valve and pump 10 more strokes in order to build up a good pressure in the fuel tank.

6. Place the boiler over the burner, securing it in place by means of the wing nuts.

7. Remove the steel shims from the head magnets and place the head directly over the fuze in such a manner that the head fits the curvature of the bomb and the magnets are seated firmly on the bomb body. A tight fit is not necessary.

8. Mark down the time and withdraw to the safety position for 40 minutes. In this period the temperature in the fuze reaches at least 80 degrees C. and the condensers lose their electrical charge.

9. Return to the bomb, turn off the burner by closing the fuel control valve, and replace the equipment after cooling.

CARE AND MAINTENANCE:

1. Keep the boiler filled within one inch of the top with clean water. Change occasionally.

2. Always keep the steel shims over the magnets in the discharging head when not in use.

3. Coil the rubber hose in the box without kinks in the line.

4. The gasoline orifice can be cleaned while the burner is in operation by rotating the tip-cleaning lever which should always be turned once before starting the burner. The orifice can be removed for additional cleaning by unscrewing the jam-nut. The cleaning needle may be unscrewed and replaced also. The wire gauze can be unrolled and cleaned also.

5. The fuel capacity is sufficient for 50 minutes of operation. If it rests on a flat surface, it cannot be over filled.

6. The pump leather is kept soft by an occasional drop of oil into the pump barrel.

7. For long storage, remove the burner and valve and pour the contents thru the valve opening.

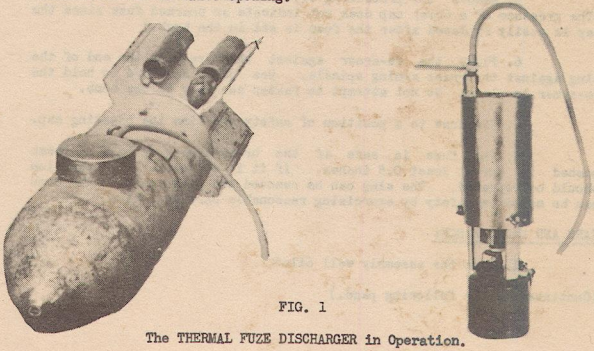


FIG. 1

The THERMAL FUZE DISCHARGER in Operation.

DISPOSAL INSTRUCTIONS	FILE NO.: 112.10
USE OF EQUIPMENT	

T-12/M-1 DE-ARMER FOR THE JAPANESE FUZE C-3(a)

THEORY:

If the brass arming spindle on the Japanese C-3(a) fuze is pushed into the fuze after it has been armed, and started to function, the two spring-loaded plungers holding the inertia weight and the two detents holding the arming assembly are sheared, and both the inertia weight and the arming assembly are pushed toward the base of the fuze. This action moves the firing pin out of line with the primer.

The operation as described above is done remotely by shooting a steel plug into the nose of the fuze. This action is so rapid that even though the fuze is in a sensitive condition, the striker will not release quickly enough to pierce the primer before it is out of line.

DESCRIPTION:

The de-armer consists of a barrel, a large cap which acts as a breech block, and a steel slug. The chamber of the barrel will receive a .30 caliber cartridge, M-2, without the slug. The cap screws over the end of the barrel, holding the cartridge in the chamber. A hole is drilled in the side of the cap to receive a No. 8 non-electric cap, or a No. 8 Engineer special cap. A larger hole will take the No. 8 standard blasting cap. Two sizes of plugs are furnished. The ends are different: One is almost equal in diameter to the arming spindle, and the other size is smaller - for use in the event that the opening in the nose of the fuze was damaged on impact. A steel rod is provided to push out the expended cartridge. (M-1 or M-2 cartridge can be used.)

OPERATION:

1. Remove the slug from a cartridge, ball, caliber .30, and plug the open end of the case with a piece of paper or cardboard. (Several may be prepared in advance by using paraffin or wax to keep out the moisture.) Cartridge, blank, caliber .30 cannot be used. A rifle grenade cartridge is a second choice.

2. Insert the blank in the chamber and screw on the cap.

3. Insert one of the slugs in the barrel with the smaller end out.

4. Insert a No. 8 blasting cap in the proper hole and tape or bind it in position. Do not block the open end of the cap, or a misfire will occur.

5. Remove the protecting cap from the fuze if one is present. (The presence of a cover cap does not indicate an unarmed fuze since the cap is easily replaced after the fuze is set in the bomb.)

6. Place the de-armer against the fuze with the end of the slug against the brass arming spindle. Use dirt and mud to hold the de-armer in place. Do not attempt to fasten securely to the bomb.

7. Withdraw to a position of safety and fire the blasting cap.

8. The fuze is safe if the brass arming spindle has been pushed in for at least 0.5 inches. If it is not safe, the operation should be repeated. The slug can be removed and used again. The bomb can be moved in safety by exercising reasonable care in moving.

CARE AND MAINTENANCE:

1. Keep the assembly well oiled.

(Continued on the following page.)

T-12/M-1 DE-ARMER FOR THE JAPANESE FUZE C-3(a) (Continued)

CARE AND MAINTENANCE:

2. Repeated firings will cause the open end of the cap to become disfigured and pitted. This does not affect its operation.

3. Additional plugs can be made in the field. Those furnished are of hardened steel (Rockwell (C 60)).

FIG. 1
Inserting the blank in the chamber.

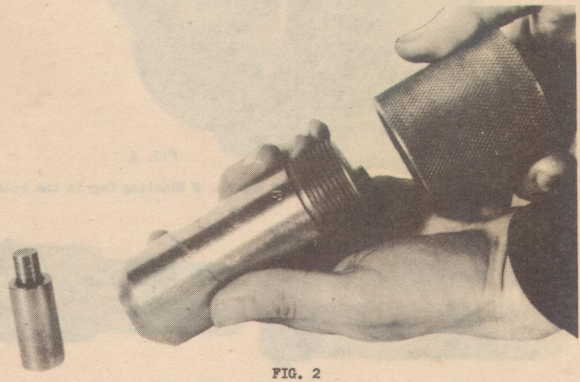
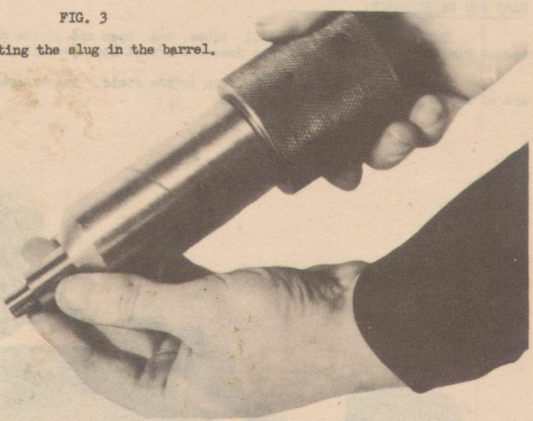


FIG. 2
Screwing on the cap.

T-12/M-1 DE-ARMER FOR THE JAPANESE FUZE C-3(a)

FIG. 3

Inserting the slug in the barrel.



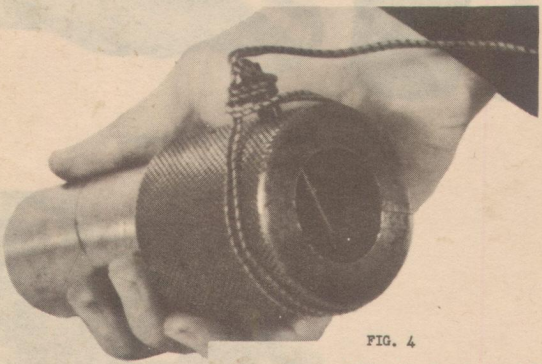


FIG. 4

Tying the No. 8 Blasting Cap in the hole.

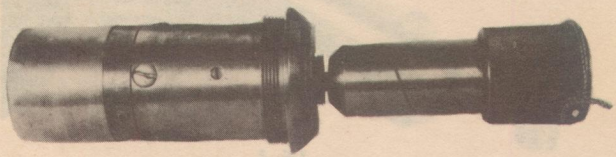


FIG. 5

Placing the De-Armer against the fuze.

DISPOSAL INSTRUCTIONS	FILE NO.: 112.10
USE OF EQUIPMENT	

T-12/M-1 DE-ARMER FOR THE JAPANESE FUZE C-3(a)

DISPOSAL INSTRUCTIONS	FILE NO.: 208.10
USE OF EQUIPMENT	

A-8/M-1 DE-ARMER FOR THE JAPANESE FUZE, C-1(a)

THEORY:

A means is provided for pulling the inertia weight back to its original position, thereby shearing the spring-loaded locking pin and releasing the compression of the firing pin spring. Since the firing pin spring will no longer be under compression, the firing pin cannot be driven into the primer. The fuze must be handled carefully until final disposal.

DESCRIPTION:

The equipment consists of a piston and a cylinder. A hydraulic piston is threaded at one end for attachment to the arming vane spindle. A cylinder surrounds the piston. Oil under high pressure is pumped into the cylinder, and forces the piston to move outward, pulling the arming vane spindle and inertia weight with it and shearing the spring-loaded plunger which locked the inertia weight in position.

OPERATION:

1. Carefully clean the threads on the arming vane spindle.

2. With the cylinder in place, screw the piston onto the spindle about 10 turns.

3. Connect the "Tite Flex" hose of the hydraulic clock-stopper to the de-armer and to the pump.

4. Apply the oil pressure. When the locking pin shears, a slight drop in pressure will be noted. About 1500 lbs./sq. inch pressure should be used.

5. Release the pressure and remove the de-armer. At least 3/4 inch of the spindle should protrude in order for the compression of the firing pin spring to be released.

6. Removal of the fuze is unnecessary. In moving the bomb, exercise care so as not to bump the spindle protruding from the fuze. Winding string around the threads and covering the spindle with tape will help prevent the spindle from moving inwards.

CARE AND MAINTENANCE:

1. Always store the assembly with the piston in back of the cylinder in order to protect the thread.

2. Keep the sliding surfaces free from dirt.

3. Keep the parts coated with heavy oil or grease as a rust preventative.

4. Screw the piston onto the spindle for at least 10 turns or the threads may break loose under high pressure.

DISPOSAL INSTRUCTIONS	FILE NO.: 208.10
USE OF EQUIPMENT	

A-8/M-1 DE-ARMER FOR THE JAPANESE FUZE, C-1(a)

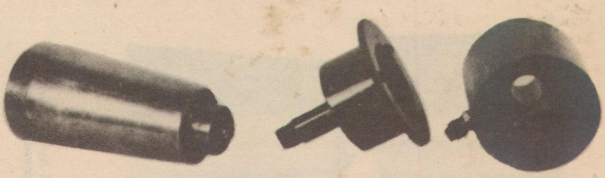


FIG. 1

The Fuze and the De-Armer (De-Armer disassembled.)

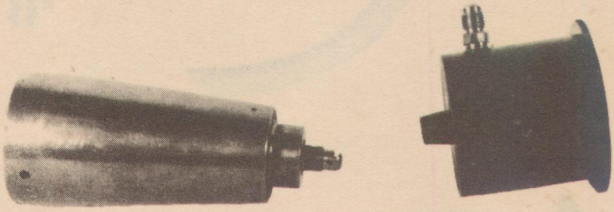


FIG. 2

The Fuze and the De-Armer (De-Armer assembled.)

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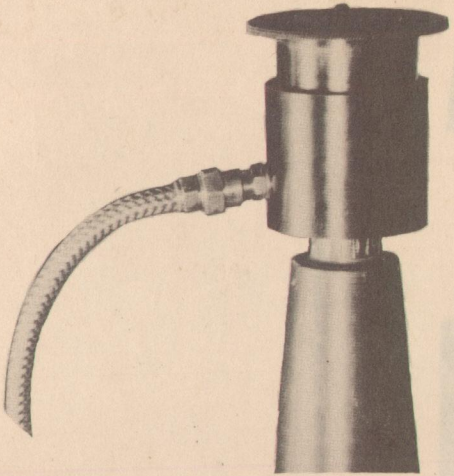


FIG. 4

The Piston as it appears after the Fuze had been made safe.

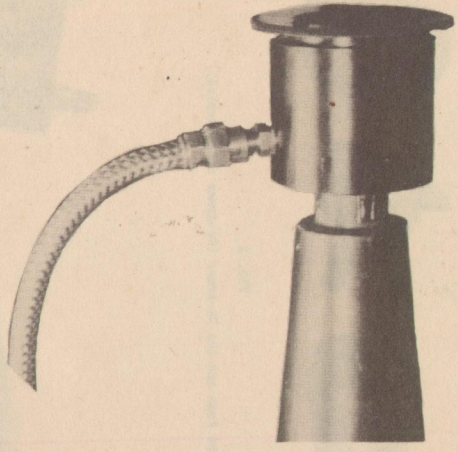
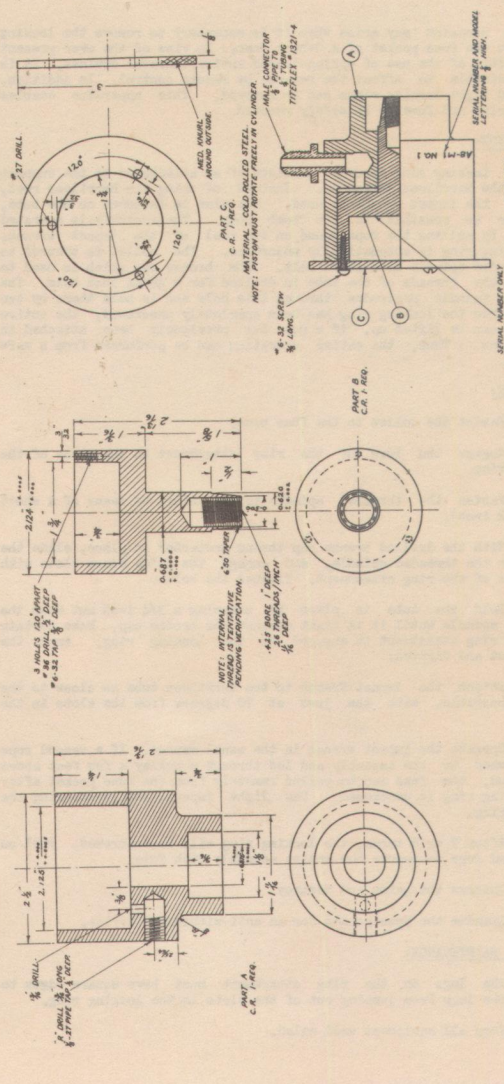


FIG. 3

The De-Armer as it should have appeared after the Piston has been screwed onto the spindle.

DISPOSAL INSTRUCTIONS	FILE NO.: 208.10
USE OF EQUIPMENT	

A-8/M-1 DE-ARMER FOR THE JAPANESE FUZE, C-1(a)



DISPOSAL INSTRUCTIONS	FILE NO.: 210.10
USE OF EQUIPMENT	

REMOTE LOCKING RING REMOVER A-10/M-1

THEORY:

The occasion may arise when it is necessary to remove the locking ring from the fuze pocket of a German Bomb. In view of the ever present possibility of the use of spring-loaded anti-withdrawal devices, it is very desirable to effect the removal by remote control. In addition, rusty and tight locking rings can be removed. This apparatus enables locking ring and fuze to be safely removed.

DESCRIPTION:

The Locking Ring Remover consists of an attachment to the support tube of the Merrilees Extractor. Instead of using the Merrilees reel, however, the impact wrench is used. The vise is fastened on the tube, as close as possible to the bomb body. The assembly is operated remotely by pulling the rope wound on the reel of the impact wrench. The locking ring is automatically unscrewed. The collet is secured to the threaded spindle by a short bolt. The bronze cap which is used to protect the threads of the tube is drilled for a 49/64 inch hole. The threaded spindle protrudes through this hole and is held there by two nuts. When the locking ring has been completely unscrewed, the entire assembly can be lifted up, if a rope has previously been attached in some manner. Thus, the entire operation can be performed from a safe distance.

OPERATION:

1. Fasten the collet to the fuze boss.

2. Engage the lugs of the ring attachment in the slots of the locking ring.

3. Fasten the threaded spindle to the collet by means of a short bolt (1/2 inch).

4. With the drilled bronze cap thread protector in place, slide the tube over the threaded spindle, and engage the guide screw slots with the bolts of the ring attachment. Tighten the bolts.

5. Hold the tube in place by screwing a 3/4 inch nut down the threaded spindle until it is tight against the bronze cap. Make certain that the ring attachment is engaged in the locking ring. Apply the second nut and tighten.

6. Attach the Impact Wrench to the Merrilees tube as close to the bomb as possible, with the jaws at 90 degrees from the slots in the tube.

7. Operate the impact wrench in the usual manner. If a second rope is attached to the assembly and led through a pulley a few feet above the ground, the fuze can be pulled remotely from the fuze pocket after the locking ring is unscrewed. Use light impacts when unscrewing the locking ring.

8. After 7 or 8 turns, the locking ring will be unscrewed. Pull on the second rope to remove the entire assembly with fuze.

9. Unscrew the gaine and destroy.

10. Examine the fuze pocket for an anti-withdrawal device.

CARE AND MAINTENANCE:

1. The lugs on the ring attachment must have square edges to prevent the lugs from jumping out of the slots in the locking ring.

2. Keep all equipment well oiled.

DISPOSAL INSTRUCTIONS	FILE NO.: 210.10
USE OF EQUIPMENT	

REMOTE LOCKING RING REMOVER A-10/M-1

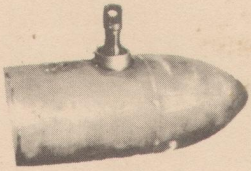


FIG. 1

Collet in place, with ring attachment engaging the slots of the locking ring.

FIG. 2

After attaching threaded spindle, with a short bolt, the tube is placed over it with the drilled cap in place and secured by two nuts.

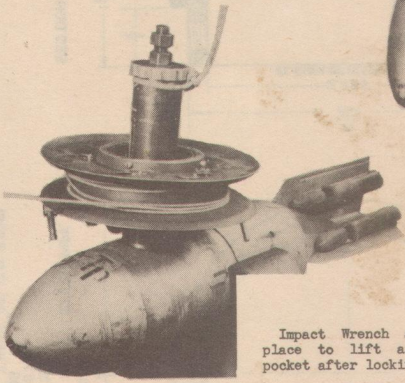
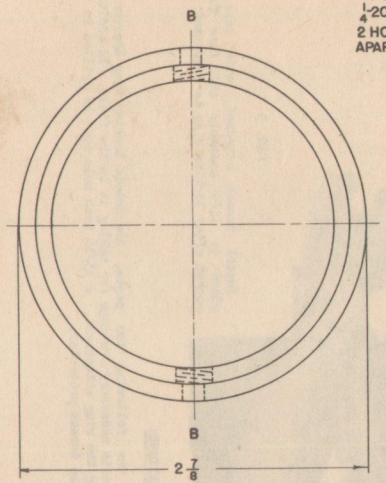


FIG. 3

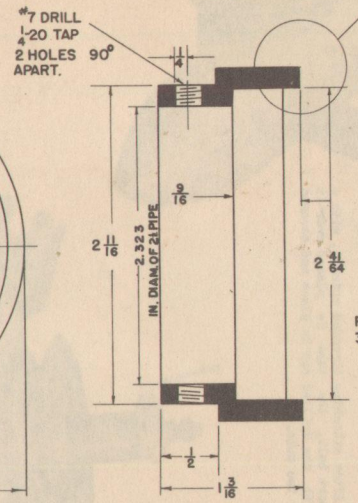
Impact Wrench attached, with rope in place to lift assembly and fuze from pocket after locking ring is unscrewed.

SPECIFICATIONS:

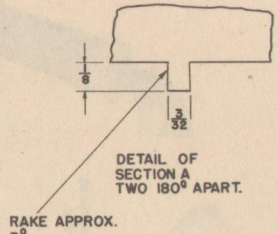
On the following two pages, the Remote Locking Ring Remover is shown, with necessary drawings for making it in the field. In addition to making the ring attachment, a 15/16 inch hole must be drilled in the Bronze Cap thread protector.



MAT.
2½ EXTRA HEAVY STEEL PIPE.
IN. DIAM. 2.323
O. DIAM. 2.875
PLAIN ENDS
WT. PER FT. 7.6661 LBS. OR C.R. STEEL.



SECTION B-B



REMOTE LOCKING RING REMOVER A-10/M-1

DISPOSAL INSTRUCTIONS
USE OF EQUIPMENT
FILE NO.: 210.10

2814

METHOD OF REMOVING
LOCKING RING BY
REMOTE CONTROL.
CAN ALSO BE USED
WITH EXTENTION CAPS
I- II- III

REMOTE LOCKING RING REMOVER A-10/M-1

DISPOSAL INSTRUCTIONS — FILE NO.: 210.10

USE OF EQUIPMENT

281

DISPOSAL INSTRUCTIONS	FILE NO.: 301.20
USE OF EQUIPMENT	

LIQUID TESTER I-1/M-2

THEORY:

A necessity existed for an instrument which would enable a Bomb Disposal Officer to determine whether B.D. Liquid for the Liquid Fuze Discharger had the proper conductivity. If too conductive, the liquid would cause the fuze to fire. If not sufficiently conductive, the liquid would not discharge the fuze.

The liquid tester is an electrical instrument which immediately determines whether the conductiveity of the liquid is within the necessary limits.

DESCRIPTION:

The Liquid Tester consists of a milliammeter graduated over a range of 0 to 1 milliampere, four flashlight cells, and a movable electrode which is dipped into the liquid to be tested.

OPERATION:

1. Press the button on the panel of the instrument to check the battery potential. The needle should be in the black portion of the scale.

2. Dip the electrode in the liquid to be tested, taking care that the electrode does not touch the side of the container. The electrode should be completely immersed.

3. If the needle points to any part of the green portion on the scale, the liquid is of the proper conductivity.

CARE AND MAINTENANCE:

1. The brass electrode must be kept clean. The surface must not be oily, and they can be cleaned with fine emery paper. Wash the electrodes occasionally in alcohol.

2. Weak batteries should always be replaced without delay. Do not allow batteries to corrode.

DISPOSAL INSTRUCTIONS	FILE NO.: 301.20
USE OF EQUIPMENT	

LIQUID TESTER I-1/M-2

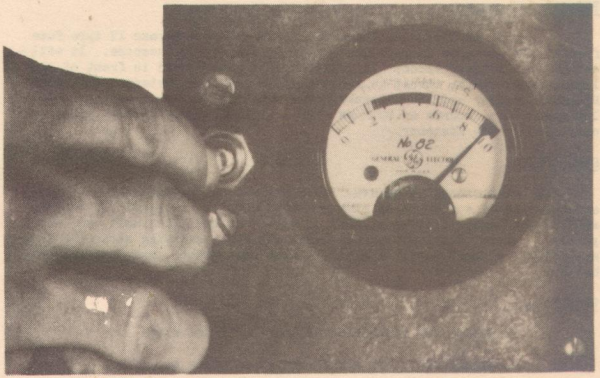


FIG. 1

Testing the equipment.

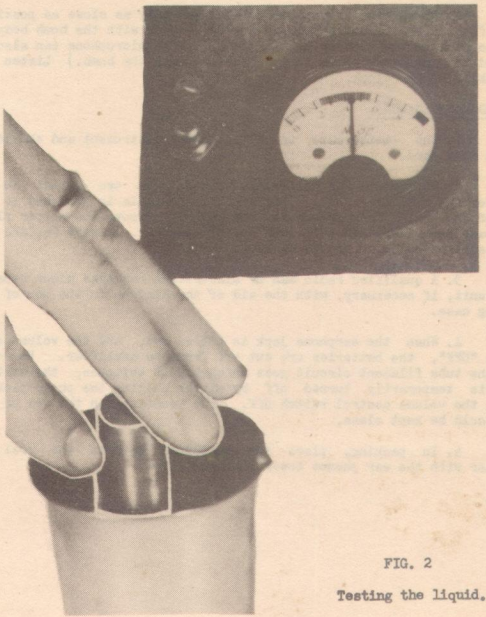


FIG. 2

Testing the liquid.

DISPOSAL INSTRUCTIONS	FILE NO.: 302.20
USE OF EQUIPMENT	

ELECTRICAL STETHESCOPE I-2/M-2

THEORY:

A means of listening for a ticking clock in a German 17 type fuze from a safe distance is provided by the Electrical Stethescope. It will detect the ticking clock; in addition, it can be held in front of the lips or against the throat in a one-way conversation between the Bomb Disposal Officer and the listener. The amplifier is designed to receive low amplitude sounds as well as high amplitude sounds without shock or confusion to the listener.

DESCRIPTION:

The stethescope apparatus is contained in a single carrying case and consists of a microphone pick-up with a built-in magnet for attachment to the bomb, a 500 foot reel of wire, an amplifier unit, and earphones. Among the accessories are included a carrying strap for the amplifier, a short cord, a crank, extra radio tube, and an extra "B" battery.

OPERATION:

1. Attach the microphone to the end of the wire.

2. Attach the other end of the wire to the amplifier.

3. Plug in the head phones. When using the short cable, remove the amplifier unit from the case and sling it from the carrying straps.

4. Place the microphone to the bomb body as close as possible to the fuze. The magnet should make good contact with the bomb body in order to pick up the ticking of the clock. (The microphone can also be attached to a probe which is in good contact with the bomb.) Listen for the ticking of the clock.

CARE AND MAINTENANCE:

1. The stethescope is a delicate instrument and should be handled with care.

2. To replace the batteries, remove the two screws in the bottom of the amplifier unit. The amplifier chassis is attached to the cover of the box. Then remove the box cover. Remove the copper plate to release the flashlight cells and the "B" battery. Always replace the "A" flashlight cells in groups of four.

3. A qualified radio man or electrician can make minor repairs to the unit, if necessary, with the aid of the diagram in the top of the carrying case.

4. When the earphone jack is pulled out, and the volume control is "OFF", the batteries are cut off from the amplifier. However, since the tube filament circuit goes through both switches, the stethescope is temporarily turned off by either pulling the phone jack or turning the volume control switch off. The contact on the end of the reel should be kept clean.

5. In packing, place the earphones between the reel and amplifier with the ear phones toward the amplifier.

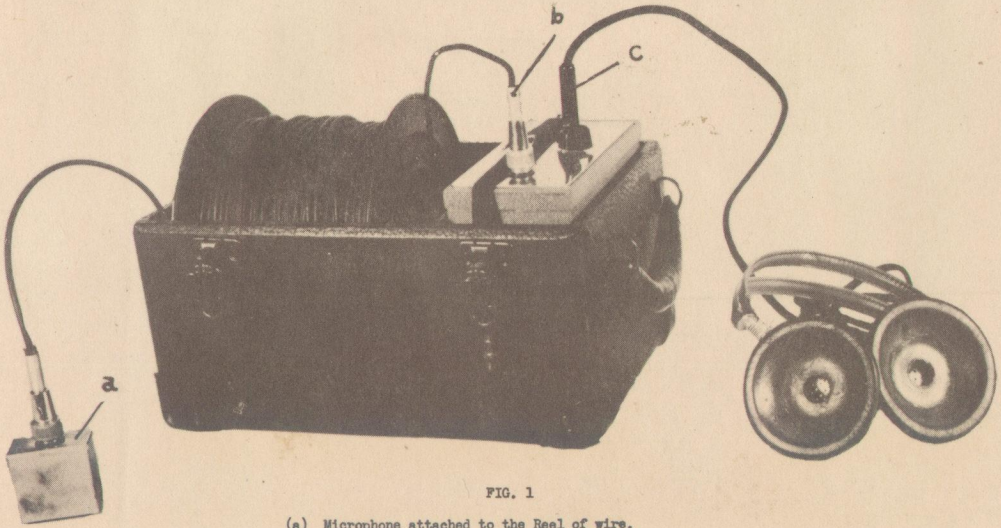


FIG. 1

(a) Microphone attached to the Reel of wire.

(b) The other end of the wire attached to the Amplifier.

(c) Headphones plugged in.

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ENEMY BOMBS & FUZES

DISPOSAL INSTRUCTIONS

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DISPOSAL METHODS OF ENEMY BOMBS AND FUZES

DISPOSAL INSTRUCTIONS:

Bomb disposal methods are constantly changing and developing due to the complexity of the problem. The enemy is able, with only slight variations of the fuzing incorporated in his bombs, to force us to completely change all of our present methods.

Some bombs and fuzes have not been dealt with in the field and for these it is impossible to set down field-tested procedures for the safe-handling of these munitions. Where the suggested method for handling has not been tested in actual operations, the notation 'Suggested Method' is made. For those methods which have been proven by field tests, the notation 'Tested Method' will be made.

If it is decided to try a different method for disposal than that recommended in this manual, care must be taken that every step of the procedure used is written down and forwarded to this School. Also any use of these methods may establish the need for changes or corrections in the methods as issued and these too must be forwarded to this School.

SALVAGE:

The retaining of bombs, fuzes or any other bomb components as personal souvenirs by bomb disposal personnel is strictly forbidden. All enemy munitions recovered by U.S. Army Bomb Disposal troops are the property of the U.S. Army. All such material must be forwarded to the Staff Bomb Disposal Officer who will forward the samples to the Headquarters, Ordnance Bomb Disposal School, Aberdeen Proving Ground, Maryland unless such samples are not required or have been previously forwarded.

NEW OR UNUSUAL TYPES OF ENEMY MUNITIONS:

The Staff Bomb Disposal Officer is to be notified immediately if any new or unusual enemy munition is encountered. This Officer will then communicate, if necessary, with the Ordnance Bomb Disposal School, Aberdeen Proving Ground, Maryland. Such communication will be followed by a written report of the material itself as well as the method used for rendering safe.

ABANDONMENT OF BOMBS:

Incidents may arise where a reported U.X.B. cannot be located by a Bomb Disposal Unit due to geographical conditions. The question of the advisability of proceeding with the use of special equipment or the abandonment of the bomb must be decided by the Staff Bomb Disposal Officer unless subsequent explosion of the bomb will cause serious damage. In the latter case, the Commanding Officer of the area is to be notified and should make the final decision.

DISPOSAL INSTRUCTIONS | REFERENCE FILE NO.: 2311.3

NATIONALITY: GERMAN	INFORMATION DATE: January 1943
Suggested Method For: A.Z.C. 10 Hut*(3)	Necessary Equipment: 1) Impact Wrench T-1/M-4 2) Attachment A-3/M-4 3) Pulleys 4) Additional Cord

1. If this fuze has failed to function on impact, it is believed to be relatively insensitive because although the clockwork may arm the fuze after impact, careful handling should not result in a sufficient jolt to detonate the fuze.

2. As the bomb in which this fuze is used weighs only 10 kilogram and contains only this fuze, it should normally be preferable to detonate this bomb in place, first providing all necessary precautions to contain the fragments from the case. By placing the charge on top of bomb, the charge will tend to force all fragments down.

3. If it is not possible to detonate the bomb in place, the following disposal procedure is recommended:

a. Secure bomb in place with sandbags or a mechanical device to prevent rotation of the bomb during fuze-removal.

b. Attach the Attachment A-3/M-4 to the base of the fuze head.

c. Secure the impact wrench T-1/M-4 to the Attachment after removing sufficient cord from the reel to pass through the pulley system to the top of the excavation.

d. With the use of additional cord tied to the end of the cord from the reel, operate the wrench from suitable cover and remove the fuze.

e. Unscrew gaine from fuze and remove from excavation for future disposal.

f. Remove the bomb to a bomb cemetery and destroy by detonation.

DISPOSAL INSTRUCTIONS REFERENCE FILE NO.: 2314.4

NATIONALITY: GERMAN	INFORMATION DATE: January 1943
Suggested Method For: (24) A	Necessary Equipment: 1) Demolition Equipment

1. No samples of this fuze have been recovered. It is therefore impossible to do more than recommend disposal procedure.

2. Because of the anti-rupture device incorporated into this fuze, it is very unlikely that this fuze will ever be found in an U.X.B..

3. Before any attempt at removal is made, it should first be ascertained whether the bomb case has distorted. Distortion will increase the possiblity of detonating the bomb by forcing the anti-rupture bar onto the needle striker.

a. First remove the locking and locating rings which secure the fuze in the fuze pocket.

b. By light pressure, determine if fuze could be removed without using force. Do not attempt removal by hand because of the danger of an anti-withdrawal device.

4. If fuze cannot be withdrawn without the use of force, two methods of disposal are recommended:

a. After discharging the (28) A fuze, normally used in the S.C. 2500 kg. bomb in conjunction with the A.Z. (24) A, "the bomb can be carefully transported to a suitable site and there detonated." (Translation of German instructions)

b. In locations where it is deemed advisable, the bomb should be detonated in place by placing demolition charges over both fuze pockets to insure complete detonation.

DISPOSAL INSTRUCTIONS	REFERENCE FILE NO.: 2314.9
NATIONALITY: GERMAN	INFORMATION DATE: January 1943
Suggested Method For: (59)	Necessary Equipment:

1. Since this is a mechanical fuze dependent on the withdrawal of the lanyard for functioning, it is very probable that if the fuze has not operated, removal of the flare to a bomb cemetery for disposal will not cause the flare to operate provided that any cords or wire attached to the flare or fuze are not pulled.

2. Because of the method of operation of this fuze, a flare in which this fuze has been incorporated should be removed to a safe place, preferably a bomb cemetery, for final disposition.

a. At no time during movement of flares should any personnel be permitted to stand in front of the domed or open end of the flare case.

b. Unburned flares are always a fire hazard and in handling or storage before disposition must be always considered with this in mind.

DISPOSAL INSTRUCTIONS

REFERENCE FILE NO.: 2324.91
2324.93

NATIONALITY: GERMAN	INFORMATION DATE: January 1943
Suggested Method For: (9), (9)*, (59) A, 59A, (79), (79) A	Necessary Equipment: 1) Screwdriver 2) Locking Ring Spanner Wrench

1. With the exception of the (9) and (9) * fuzes, none of this group contain condensers. Because of this fact, it is very unlikely that the need for discharging these fuzes will arise in the field. The (9) and (9) * fuzes, because of the glow-discharge tube and the weak condensers used in the fuze, will not function if they have not previous to impact.

2. The following procedure in the handling of flares containing these fuzes is recommended:

a. Do not permit any personnel to stand in front of the domed cap covering the flare or the open end if this cap is not present. This will prevent any casualties should the flare be ejected during disposal.

b. Remove locking and locating rings, or bayonet-type locking ring and withdraw the fuze. This removal does not require remote control provided that the precaution given in Paragraph 2a above is complied with.

c. After fuze has been withdrawn, the quickmatch leads, which are normally encased in a rubber tube should be cut.

c. Should the flare case have distorted on impact so as to render the withdrawal of the fuze impossible, it is safe to remove the flare and fuze to the bomb cemetery for final disposal.

3. These flare fuzes are not sensitive and require no disposal but the flare candle or candles should be destroyed so as to reduce any fire hazard.

DISPOSAL INSTRUCTIONS REFERENCE FILE NO.: 2324.92

NATIONALITY: GERMAN	INFORMATION DATE: January 1943
Suggested Method For: (49) BI, (49) BII (49) BIII	Necessary Equipment.

(49) BI

The (49) BI is only a fuze head for transmitting the electrical charge from the charging head to the (49) BII and (49) BIII fuzes, and as such requires no disposal. If the bomb should be found complete, the wire leads from the rear of the (49) BI to the other fuzes should be cut.

(49) BII

The (49) BII is an aerial burst fuze believed to be similar to the other Type 9 fuzes. Like the other fuzes of this type, if the (49) BII has not operated prior to impact, it will not operate subsequently. Therefore no disposal of this fuze is required.

(49) BIII

Two insulated leads pass through the head of the (49) BIII fuze from the (49) BI fuze head. These should be cut if not already broken on impact.

The British recommend the following discharge procedure for this fuze:

a. Bare the leads from the fuze head and short to the bomb case, holding the leads to the case for at least one minute.

b. If the leads are not accessible, the Steam Jet method of fuze discharge is recommended.

2 8 2325.6
2322.6
2321.5

DISPOSAL INSTRUCTIONS REFERENCE FILE NO.: 2321.8

NATIONALITY: GERMAN	INFORMATION DATE: January 1943
Tested Method For: Type 5, Type 8, (26) (50) and 50 Fuzes	Necessary Equipment: 1) Liquid Fuze Discharger 2) Merrilees Fuze Extractor Alternate Equipment: 1) Steam Discharger 2) Steam Jet Attachments

1. It is directed that all German Rheinmetall Electrical fuzes except Type 7 and Type 9 fuzes be discharged by suitable means regardless of length of time the bomb has fallen. This must be done to insure safety during operations on these fuzes.

As soon as the fuze has been uncovered and identified as a Type 5, Type 8, (26) , (50) , or 50 fuze, the fuze head must be carefully cleaned to provide a liquid-tight seal for the fuze discharger collet. The fuse must then be discharged using one of the following approved methods for electrical fuze discharging:

a. Liquid Fuze Discharger
b. Thermal Discharger
   1) Steam discharger
   2) Steam Jet method

Ordinarily, the Liquid Fuze Discharger will be employed and the operational instructions for this equipment must be studied prior to its use.

2. Where a Liquid Fuze Discharger is employed, the following volumes of liquid must enter the fuze to insure complete discharge:

Fuze Designation	Volume of Liquid Required
(15) , 28 (*)	5 c.c.
(35) , (38) , (50) , (55), 50	10 c.c.
(25) , (28)	20 c.c.

If the required amount of liquid has entered the fuze, at least twenty-five (25) minutes should be allowed from the time discharging was started before any further operations are attempted.

3. After discharge is complete, the locking and locating rings or similar device should be removed, testing for pressure of a spring-loaded booby-trap at frequent intervals.

4. If a booby-trap is suspected, the locking ring is to be re-tightened and no further attempt made to withdraw the fuze. The explosive must be removed from the bomb by: 1) Steaming-out after removal of base plate; or 2) Trepanning the bomb case followed by steaming-out. These procedures will be required under all circumstances unless it is permissible to destroy bomb by detonating in place.

5. If no booby-trap is suspected, the fuze should be withdrawn by remote control using one of the following methods:

a. Merrilees Fuze Extractor (See Merrilees Extractor, Operation of).
b. Length of cord using pulley system to permit remote control. (This is not recommended except in urgent cases where a Merrilees Extractor is not available).

6. After fuze has been withdrawn, the gaine must be unscrewed and removed from the excavation to a safe place for future disposal.

7. The bomb should be removed from the excavation to a bomb cemetery for final disposal by:

a. Detonation of bomb with explosive
b. Steaming-out of explosive filler
c. Burning-out of filling.

Methods b and c must be followed by detonating the fuze pocket which contains the booster of Picric or T.N.T.

DISPOSAL INSTRUCTIONS REFERENCE FILE NO.: 2341.1

NATIONALITY: GERMAN	INFORMATION DATE: January 1943
Suggested Method For: (41), (67), (70) B "Butterfly" Bomb Fuzes	Necessary Equipment: 1) Demolition Equipment

1. These fuzes are very sensitive and no attempt should be made to handle or move any 2 kg. "Butterfly" anti-personnel bomb containing one of these fuzes.

2. All bombs containing a (41), (67), or (70) B fuze must be detonated in place after being surrounded by a sand-bag wall, or a metal casing having an upper opening to release the blast pressure and a wall thickness capable of withstanding perforation by the fragments.

a. Before any detonation is attempted, the complete charge, blasting cap, fuze and T.N.T. block, should be assembled away from the bomb so that prolonged proximity with the bomb is not necessary.

b. A suitable protection shield can be made from the base end of a 250 or 500 pound U.S. General Purpose bomb case.

DISPOSAL INSTRUCTIONS REFERENCE FILE NO.: 2342.9

NATIONALITY: GERMAN	INFORMATION DATE: January 1943
Suggested Method For: (39)	Necessary Equipment: 1) 200 feet of cord. 2) Demolition Equipment

1. This fuze although recovered from a new type of photoflash bomb is suitable for use in any bomb normally using a Rheinmetall fuze where it is desired to produce an aerial burst.

2. "In dealing with unexploded bombs (of any type) which contain this fuze, all vibration must be avoided, for although the fuze may be unable to function, it may also be, like all spring-loaded mechanical firing devices, in a dangerously sensitive condition." - D.U.B.D. Technical Instruction 190, 8/42.

3. If the fuze has armed, i.e. the steel ball has been withdrawn from its opening in the fuze head, the following procedure is recommended:

a. A 'gag' (which may be made from a nail or similar article of the correct diameter) should be inserted in the opening from which the steel ball was withdrawn. This will depress the pin which will in turn prevent movement of the balance wheel of the clockwork.

b. After the 'gag' has been secured in place, the locking and locating rings should be removed, care being taken to prevent vibration of the bomb.

c. As the Merrilees Extractor will not withdraw this fuze because of the larger fuze boss, it will be necessary to slip a cord around the fuze boss, the cord being of sufficient length to permit the withdrawal of the fuze by remote control.

d. After withdrawal of the fuze, unscrew the gaine and remove the gaine from the excavation for future disposal by detonation.

e. The bomb should then be removed to a bomb cemetery for disposal by:

1) Demolition

2) Steaming-out followed by demolition of the fuze pocket or pockets.

2343.71
2343.72
2343.73

DISPOSAL INSTRUCTIONS | REFERENCE FILE NO.:

NATIONALITY: GERMAN	INFORMATION DATE: January 1943
Tested Method For: (17), (17)A, (17)B Fuzes	Necessary Equipment: 1) Hydraulic Clock-Stopper (Complete) Alternative Equipment: 1) Stevens Clock-stopper

1. As soon as the fuze has been uncovered and identified as a Type 7 Long-delay fuze, the stethoscope must be applied to ascertain if the clock is running.

2. If the clock is not running, any anti-handling fuze, such as a (50) fuze, incorporated in the bomb must be dealt with prior to the attack on the Type 7 fuze. After the anti-handling fuze has been dealt with, the procedure given in Paragraph 3 below is to be followed.

3. If the clock is running and if an anti-handling fuze which has not been dealt with is in the bomb, then the Type 7 fuze should be dealt with as follows, with care being taken not to jolt or disturb bomb.

a. No attempt shall be made to stop the clock by the use of magnetic force.

b. The hydraulic clock-stopper (U.S. A.B.D. Model) is to be applied as follows:

1) Remove locking ring while maintaining pressure on the fuze head to prevent the action of a possible Zus 40 or spring-loaded booby-trap.

2) REMOVE LOCATING RING AND APPLY A FIBER GASKET IN ITS PLACE. PLACE 'GASKET DEFEATER' UNDER FUZE FLANGE.

3) Screw on pressure head and attach end of Tite-flex hose to union on side of pressure head.

4) Attach stethoscope near fuze head.

5) A pressure of 1000 lb./sq. in. must be maintained with the hand pump for at least 5 minutes.

6) If the clock has not stopped (can be ascertained by use of the stethoscope) after this period, the pressure should be raised until clock stops.

7) After clock has stopped, a pressure of 1000 lbs./sq. inch must be maintained for an additional 5 minutes to insure that the mechanism is completely filled with oil.

4. If the anti-handling fuze has not been dealt with previously, this must be dealt with at this time. (See discharge procedure for 50 and (50) fuzes).

5. Remove the clock-stopper head and replace locking and locating rings.

6. No attempt shall be made to withdraw the Type 7 fuze from the fuze pocket of the bomb.

7. The bomb (with the Type 7 fuze) should be removed to a bomb cemetery and destroyed by:

a. Detonation

b. Steaming-out, followed by detonation of the fuze pocket or pockets.

NOTE: Burning-out of explosive filling will not be attempted on bombs with Type 7 fuzes due to the great risk involved.

2411.N1,2,4,5,6,8,9
2411.T1,3,5,6

DISPOSAL INSTRUCTIONS REFERENCE FILE NO.: 2412.N1

NATIONALITY: ITALIAN	INFORMATION DATE: January 1943
Suggested Method For: **Nose Fuzes:** A, B, V, J, L, M, R, S **Tail Fuzes:** C, C1, G, Y, Y1, N, O **Proximity Fuzes:** I, T	Necessary Equipment: 1) Impact Wrench T-1/M-4 2) Attachment A-3/M-4

1. All of the above named fuzes operate on the same principle (except the proximity fuzes): Arming vanes revolve to unscrew an arming spindle which keeps steel safety balls in an extended position preventing relative movement of the striker and primer-detonator housing until fuze has armed.

2. If the fuze has armed, and this should be assumed unless arming wire is still in place, no attempt should be made to rotate the vanes or change the relative position of any parts. Rotation of the vanes may force the arming stem onto the striker or inertia weight which in turn may be forced onto the primer.

3. The following procedure is recommended:

a. Secure striker head (in nose fuzes) or arming vanes (nose and tail fuzes) to prevent movement during removal.

b. Secure Attachment A-3/M-4 to the fuze body.

c. The Impact Wrench should then be secured to the Attachment and sufficient cord taken from the reel to pass through the pulley system to the top of the excavation.

d. Sufficient cord should then be tied to the line from the reel to permit remote operation of the wrench.

e. Remove fuze from bomb with the Impact Wrench.

f. After removal of fuze from bomb, unscrew gaine from fuze and remove both gaine and fuze from excavation.

4. After any other fuze in bomb has been dealt with, remove bomb to bomb cemetery for disposal by demolition.

NOTE: Gaine should be destroyed with bomb.

2411.N3
2411.N7, N95
2411.T2, T4
2411.T7, T8

DISPOSAL INSTRUCTIONS REFERENCE FILE NO.:

NATIONALITY: ITALIAN	INFORMATION DATE: January 1943
Suggested Method For: F, W, Q, V - Nose E, K, D, Z - Tail	Necessary Equipment: 1) Demolition Equipment 2) Impact Wrench T-1/M-4 3) Attachment A-3/M-4

1. The striker in this type fuze is contained in a housing which slides in a cup-shaped piece housing the primer-detonator. The two parts are kept apart by a creep spring and an arming stem which extends two steel balls so that they prevent movement of the parts.

2. If a fuze of this type has armed, it is very sensitive to rotation as the hemi-spherical faces, upon which the striker and primer-detonator housings rest, tend to force the two parts together. Therefore, removal by unscrewing the fuze from the bomb is not advisable.

3. Where the fuze has not armed, as is evidenced by the presence of the arming wire, the fuze can be removed as follows:

a. Secure Attachment A-3/M-4 to the fuze body and assemble Impact Wrench T-1/M-4 to the Attachment.

b. Uncoil sufficient cord from the reel to pass through the pulley system to the top of the excavation where additional cord is tied on to allow the wrench to be operated from a point of safety.

c. Remove fuze by remote control, unscrew gaine from fuze and remove both from excavation.

d. Destroy gaine as soon as possible by demolition.

4. These fuzes are normally used in small anti-personnel, incendiary and gas bombs. For all bombs except the gas bombs, it is recommended that the bombs be blown up in place. The bombs should be surrounded by a sand-bag wall or a protection shield. Placing the charge on top of the bomb will tend to force the fragments downward.

5. Gas bombs have not been used in this war so far and disposal methods for all types of toxic agents have not been formulated. When gas is used, Bomb Disposal officers will be charged with obtaining samples of enemy agents. The equipment for this operation is now under development. The disposal of damaged gas bombs must be carried out with the cooperation of a Chemical Warfare officer.

DISPOSAL INSTRUCTIONS REFERENCE FILE NO.: 2415.T1

NATIONALITY: ITALIAN	INFORMATION DATE: January 1943
Suggested Method For: Manzolini	Necessary Equipment: 1) Demolition Equipment 2) Protective Shield or Sandbags

1. Since the Manzolini fuze is an anti-disturbance fuze, no attempt shall be made to move or deal with the 4 kg. bomb containing this fuze unless the arming vanes and outer cap are still in place.

2. Unless it can be definitely determined that the fuze has not armed, the bomb must be detonated in place.

a. A protective shield or sandbag wall should be built around the bomb to contain the fragments. This must be done cautiously so as not to jar bomb.

b. A demolition charge of one Triton block (1/2 lb. T.N.T.) should be prepared with detonator away from the location of the bomb.

c. The charge should not be placed on the bomb (this will not permit of accidental movement of the bomb) but if placed within a few inches will be satisfactory.

3. If it can be definitely ascertained that the safety pin, arming vanes and outer cover of the fuze are present, the bomb can be safely removed for final disposal. It can not be too strongly stressed that the three parts mentioned must be in place before movement is attempted.

DISPOSAL INSTRUCTIONS REFERENCE FILE NO.: 2422.N1

NATIONALITY: ITALIAN	INFORMATION DATE: January 1943
Suggested Method For: 'X'	Necessary Equipment: 1) Impact Wrench T-1/M-4 2) Attachment A-3/M-4

1. This fuze operates by the firing of an electrical detonator from the current furnished by a small generator in the fuze, the circuit being completed by the closing of contacts after the bomb has fallen a predetermined number of meters. This fuze must fire before striking the ground as the generator must be turning at the moment that the circuit is completed. There are no condensers in this fuze to store up electrical energy. Therefore this fuze will be completely safe if found in a U.X.B..

2. From the conclusion cited above, the following recommendation is made:

a. Attachment A-3/M-4 is to be applied to the fuze body as close to the bomb casing as possible to prevent accidental movement of the striker plate or arming cup assembly.

b. The Impact Wrench is then secured to the Attachment after sufficient cord has been taken off of the reel to pass through the pulley system to the top of the excavation.

c. Sufficient cord is to be attached to the end of the line from the reel to allow the wrench to be operated from suitable cover at a minimum distance of 130 feet unless position is protected by building or other structures.

d. Using the impact feature of the wrench where necessary and a steady pull on the cord when the fuze has loosened, the fuze should be unscrewed from the bomb case.

e. No further disassembly of the explosive content of the fuze should be attempted but the fuze should be removed from the excavation for future disposal.

f. The bomb can be safely removed after any other fuzes have been dealt with.

DISPOSAL INSTRUCTIONS

REFERENCE FILE NO.: 2444.N1 2444.T1

NATIONALITY: ITALIAN	INFORMATION DATE: January 1943
Suggested Method For: Nose and Tail Clockwork Long-delay Fuzes	Necessary Equipment: 1) Stethoscope 2) Impact Wrench T-1/M-4 3) Attachment A-3/M-4

1. Delay periods up to eight (8) days can be obtained with these fuzes so that no recovery should be attempted on U.X.B.'s known to be dropped by Italians and estimated to be 500 kg. or larger until after nine (9) days unless immediate removal is ordered.

2. The following disposal procedure is recommended for these fuzes:

a. Immediately upon identification of fuze as an Italian clockwork long-delay fuze, the stethoscope should be applied to the fuze body to determine if clock is running.

b. If clock is running:

1) The stethoscope should be removed from the excavation while the Attachment A-3/M-4 is secured to the fuze body.

2) The Impact Wrench T-1/M-4 should then be secured to the Attachment after sufficient cord is taken off of reel to pass through pulley system to top of excavation where additional cord is tied on to permit remote control operation.

3) After removing fuze from bomb, the fuze should be taken from excavation and placed in a small, prepared excavation where subsequent explosion would not be destructive.

4) The bomb should then be removed from the excavation to a bomb cemetery for final disposal by demolition.

5) Fuze should also be destroyed by demolition.

c. If clock is not running:

1) Leave stethoscope in position on bomb near fuze.

2) The Impact Wrench T-1/M-4 should then be secured to the Attachment after sufficient cord is taken off of the reel to pass through pulley system to top of excavation where additional cord is tied on to permit remote control operation.

3) After removing fuze from bomb, the fuze should be taken from excavation and placed in a small, prepared excavation where subsequent explosion would not be destructive.

4) The bomb should then be removed from the excavation to a bomb cemetery for final disposal by demolition.

5) Fuze should also be destroyed by demolition.

DISPOSAL INSTRUCTIONS | REFERENCE FILE NO.: 2511.N1-N5 2511.T1-T5

NATIONALITY: JAPANESE	INFORMATION DATE: January 1943
Suggested Method For: **Mechanical Nose Fuzes:** A-1(a), A-2(a), A-2(b) A-3(a), A-4(a) **Mechanical Tail Fuzes:** B-1(a), B-2(a), B-2(b) B-3(a), B-4(a)	Necessary Equipment: 1) Impact Wrench T-1/M-4 2) Attachment A-3/M-4 3) Attachment A-1/M-3 4) Attachment A-6/M-1

1. All of the above fuzes are simple, vane-arming, mechanical fuzes.

2. Because of the use of sharp-pointed strikers which pierce the primer cap, movement of the striker head or arming vanes is believed to be dangerous. From all available information, strikers of this type should not be withdrawn from primers.

3. Therefore the following procedure is recommended for disposal of these fuzes:

a. Secure striker head (in nose fuzes) or arming vanes (nose and tail fuzes) to prevent movement during removal.

b. Secure Attachment A-3/M-4, or Attachment A-1/M-3 (for nose fuzes with spanner holes), or Attachment A-6/M-1 (for tail fuzes with spanner holes) to the fuze body.

NOTE: In the tail fuzes B-2(a) and B-2(b), the locking ring must first be removed by a spanner wrench.

c. The Impact Wrench should then be secured to the Attachment and sufficient cord taken from the reel to pass through the pulley system to the top of the excavation.

d. Sufficient cord should then be tied to the line from the reel to permit remote operation of the wrench.

e. Remove fuze from bomb with the Impact Wrench.

f. After removal of fuze from bomb, unscrew gaine from fuze and remove both gaine and fuze from excavation.

4. After any other fuze in bomb has been dealt with, remove bomb to bomb cemetery for disposal by demolition.

NOTE: Gaine should be destroyed with bomb.

DISPOSAL INSTRUCTIONS REFERENCE FILE NO.: 2533.N1

NATIONALITY: JAPANESE	INFORMATION DATE: January 1943
Suggested Method For: C-2(a) Chemical Long-delay Nose Fuze	Necessary Equipment: 1) Impact Wrench T-1/M-4 2) Attachment A-3/M-4

1. This fuze presents a rather difficult problem of removal because of the ball-locking device. To date, no information has been received of the methods employed to remove the orginal sample of this fuze.

2. The acetone chamber is this fuze is located inside the nose of the bomb so that any attempt to freeze the liquid by a CO_2 extinguisher may prove unsatisfactory.

3. The following procedure is recommended for disposal of this fuze if it is possible to risk the detonation of the bomb although this method also involves stripping of the threads of the bomb or fuze to effect removal:

a. The jaws of the Attachment should be secured to the cylindrical portion of the fuze body.

b. After the Attachment has been secured to the fuze, the Impact Wrench should be fastened to the Attachment.

c. By use of a suitable pulley system, the wrench can be operated from a point of safety.

d. It is believed that the impact feature of the wrench must be employed until the fuze has been completely withdrawn because of the locking device.

e. After removal of the fuze, the gaine should be unscrewed from the fuze by remote control because of delayed action of the fuze; or the entire fuze should be blown-up.

4. After removal of the fuze or fuzes, the bomb should be removed from the excavation for final disposal by demolition in a bomb cemetery.

DISPOSAL INSTRUCTIONS — REFERENCE FILE NO.: 2533.T1

NATIONALITY: JAPANESE	INFORMATION DATE: January 1943
Suggested Method For: C-1(a) Chemical Long-Delay Tail Fuze.	Necessary Equipment: 1) Impact Wrench T-1/M-4 2) Attachment A-3/M-4 3) Fuze De-armer for C-1(a)* * This item is not standard issue at present time.

This fuze presents a rather difficult problem of removal because of the ball-locking device. To date, no information has been received from the field of the methods employed to remove the original samples of this fuze.

Method A (below) involves the removal of the tail fin assembly, if present, although this fuze is fitted into the apex of the tail cone.

Method B (below) is applicable if the tail assembly is present or missing.

1. METHOD A

If it is possible to risk the detonation of the bomb, this fuze can be withdrawn by the use of the Impact Wrench T-1/M-4 with Attachment A-3/M-4 although this probably involves stripping the threads of the fuze to effect withdrawal.

a. The tail fins will probably have to be bent clear of the cone to permit applying the wrench.

b. The jaws of the Attachment should, if possible, be secured to the cylindrical surface at the base of the outer fuze body.

c. After the Attachment has been secured to the fuze, the Impact Wrench should be fastened to the Attachment.

d. By use of a suitable pulley system, the wrench can be operated from a point of safety.

e. It is believed that the impact feature of the wrench will be required until the fuze is completely withdrawn due to the locking device.

f. After the removal of the fuze, the gaine should be unscrewed from the fuze but this must be done by remote control if the fuze has been armed because of the delay action of this fuze.

2. METHOD B

From recent investigations by the Experimental Section of this School, the following method for dealing with this fuze has been envolved:

a. A small Fuze De-armer*(See drawing) has the base of the piston rod internally threaded to screw onto the threaded arming spindle which will be depressed into the fuze body if fuze has armed.

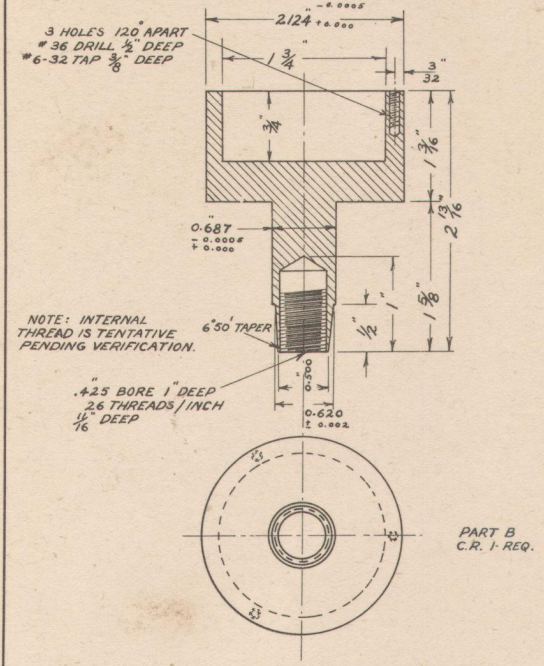
b. After the de-armer has been installed on the arming spindle, using the knurled head of the piston, the Titeflex tubing issued with the Hydraulic Clock-stopper is to be attached to the union on the piston housing of the de-armer.

c. Pressure should then be applied at the base of the piston by the use of the hand-pump of the clock-stopper until the spring-loaded detent pin has sheared and the inertia block and arming spindle has returned to the unarmed position, thus releasing pressure on the striker. When this has been done the pressure on the pump gauge will drop off as the oil will leak out the ports in the piston housing.

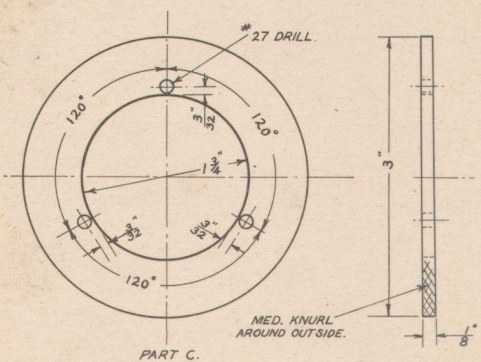
d. After the fuze has been disarmed by the method as given, it is not necessary to remove the fuze from the bomb while in the excavation but the bomb can be removed to the bomb cemetery with careful handling.

* NOTE: This Fuze De-armer is to be issued in the near future but if facilities are available in the field it can be manufactured from the drawings as given.

FUZE DE-ARMER FOR C-1(a) FILE NO. 2533.T1



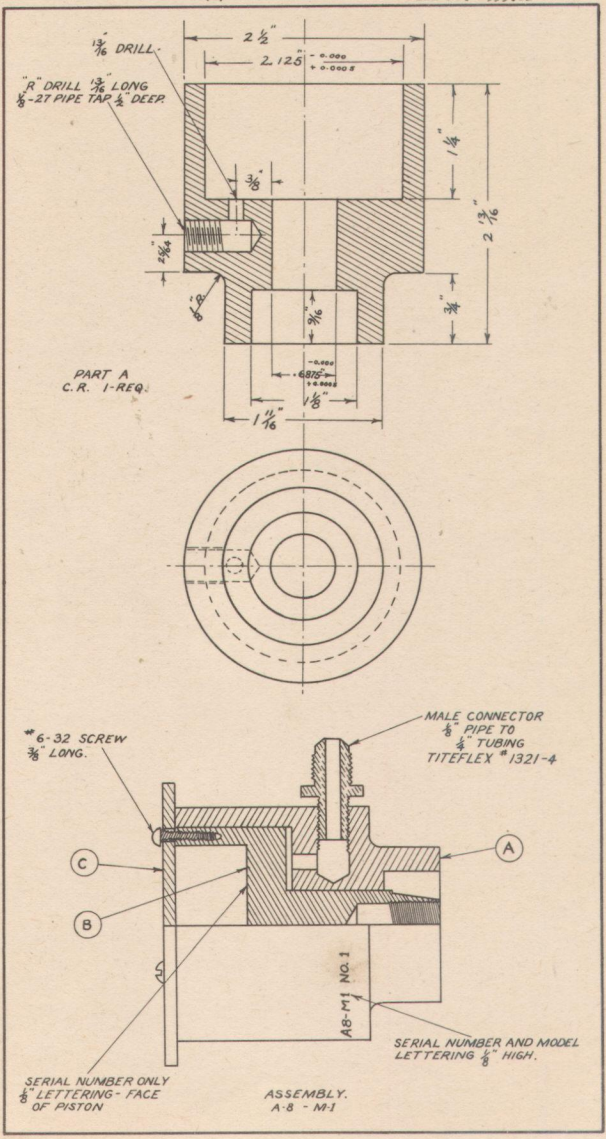
PART B
C.R. 1- REQ.



PART C.
C.R. 1-REQ.

MATERIAL - COLD ROLLED STEEL.
NOTE: PISTON MUST ROTATE FREELY IN CYLINDER.

FUZE DE-ARMER FOR C-1(a) FILE NO. 2533.T1



2611.N1 - N8
2611.T1 - T3

DISPOSAL INSTRUCTIONS REFERENCE FILE NO.: 2612.N1

NATIONALITY: FRENCH		INFORMATION DATE: January 1943
Suggested Method For:	Type A Modified Type H R.S.A. Mle. 1925, 1928 1929, 1930 M bis No. 3 bis Sch. R No. 7, 8 No. 9, 10 No. 11	Necessary Equipment: 1) Impact Wrench T-1/M-4 2) Attachment A-3/M-4 3) Auxiliary Jaw A-3/M-3

1. All French fuzes thus far reported are direct-acting, simplified mechanical types.

2. The creep springs used in French fuzes are considerably stiffer than those normally encountered in mechanical fuzes of other nationalities. For this reason, even armed French fuzes are fairly insensitive provided that no attempt is made to change the relative positions of the different parts of the fuze or subject fuze to unwarranted impacts.

3. The following procedure is recommended for all French fuzes:

a. Secure Attachment A-3/M-4 to fuze body using Auxiliary Jaw A-3/M-3 where small diameters are encountered.

b. The Impact Wrench is then secured to the Attachment after sufficient cord has been taken off of the reel to pass through the pulley system to the top of the excavation.

c. Sufficient cord is to be attached to the end of the line from the reel to allow the wrench to be operated from suitable cover at a minimum distance of 150 feet unless position is protected by buildings or other structures.

d. Using the impact feature of the wrench where necessary and a steady pull on the cord when the fuze has loosened, the fuze should be unscrewed from the bomb case.

e. No further disassembly of the explosive content of the fuze should be attempted but the fuze should be removed from the excavation for future disposal.

f. The bomb can be safely removed after any other fuzes have been dealt with.